

Exploring collocation development in L2 German from students' perspective: A contrasting case study

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Abstract

Despite the growing body of studies on collocation learning in SLA research, there are hardly any studies taking the perspective of the individual learner or studies that have examined the effect of individual differences. This study—a qualitative component of a mixed-methods longitudinal project—presents an in-depth exploration of the intro- and retrospective views of five Dutch-speaking L2 students of German on their 3-year collocation learning process. It focuses on the individual factors that enhanced or hindered L2 collocation development, and on the extent to which effective and less effective collocation learners differed regarding their L2 motivation, exposure and use, learning experience, and learning strategies. Extreme sampling strategy was used and five contrasting cases of learners were selected (three effective versus two less effective collocation learners). Data were gathered through semi-structured interviews and learners' written reflections on five specific collocations. Findings indicate that the effective collocation learners showed a higher intrinsic motivation, more engagement in informal learning activities, more extensive social interaction in the L2, more awareness towards collocations, a higher degree of self-regulation, and a higher number of learning strategies

than the less effective collocation learners. Based on these findings, pedagogical implications are provided.

Keywords: collocations; L2 motivation; L2 exposure; L2 learning experience; L2 learning strategies

1. Introduction

It is now widely recognized that language consists to a large extent of multiword combinations, also known as formulaic sequences (FS) (Schmitt, 2012; Sinclair, 1991; Wray, 2000). Building up a repertoire of FS is crucial for foreign/second language (L2) learners, as FS make language fluent, natural, and idiomatic (Nation, 2001). However, L2 formulaic development has shown to be a slow and difficult process (Boers et al., 2014; Boone et al., 2023). Already at the beginning of the millennium, Wray wrote: “If formulaic sequences are so difficult to learn, then unless we understand why, we are unlikely to hit on a successful way of teaching them” (Wray, 2000, p. 468). Since then, numerous studies have been carried out in order to understand the complex nature of learning FS, including collocations.

Several item-related and learner-related factors have been linked to the acquisition, processing, and use of FS. Item-related factors include, for example, L1-L2 congruency (Boone et al., 2023; Ding & Reynolds, 2019; Vu & Peters, 2022; Wolter & Gyllstad, 2013) and corpus frequency (Durrant, 2014; Ellis, 2002). Learner-related factors or individual differences (IDs) include factors – often inter-related – such as age of onset (Foster et al., 2014), memory-based language aptitude (Bolibaugh & Foster, 2013; Ellis & Sinclair, 1996), motivation (Arvidsson, 2021; Dörnyei et al., 2004), exposure (Bolibaugh & Foster, 2013; Foster et al., 2014), social interaction (Boone, 2021; Dörnyei et al., 2004), and self-efficacy and self-regulation (Arvidsson, 2021). While in the broader field of formulaic language research findings thus suggest the influence of a number of IDs on learners’ formulaic competence, less research has been conducted on IDs influencing learners’ collocation competence. Some IDs identified in this area are prior L2 vocabulary knowledge (Boone et al., 2023; Vilkaitė, 2017; Vu & Peters, 2022), language aptitude (Forsberg Lundell & Sandgren, 2013; Granena & Long, 2013), phonological short-term memory (Boone & Eyckmans, 2019; Skrzypek & Singleton, 2013), and L2 exposure and immersion (González Fernández & Schmitt, 2015).

Those studies, however, have mainly focused on quantitative measures, which indicates that the perspective of the individual learner has largely been overlooked. Two exceptions are the case studies by Barfield (2009) and Li and Schmitt (2010) which follow individual learners’ development of collocation

knowledge over time. Because "it is more than likely that collocational acquisition is much more idiosyncratic in nature and dependent on specific language use situations than single word acquisition" (Henriksen, 2013, pp. 48-49), more qualitative approaches are needed. Examining the intro- and retrospective views of the learners themselves regarding their learning process might provide a fuller picture of factors influencing L2 collocation development and might increase our understanding of the mechanics of L2 collocation learning. Therefore, this study explores the views of five Dutch-speaking language students of German, three effective versus two less effective collocation learners, looking back and reflecting on their 3-year collocation learning trajectory. The IDs under investigation are L2 motivation, exposure and use, learning experience and learning strategies. By juxtaposing effective versus less effective collocation learners, specific behaviors might be identified that help L2 learners acquire collocation knowledge. The overarching research question of this study is: *To which extent do effective and less effective collocation learners differ with respect to their L2 motivation, exposure and use, learning experience and learning strategies?*

2. Literature review

2.1. Collocations in L2 learning

Collocations are generally seen as a subcategory of formulaic language. A collocation can be broadly defined as "a sequence of words that co-occur more often than would be expected by chance," for example, *strong tea* and *powerful computers* (Ellis & Ogden, 2017, p. 605). Acquiring L2 collocation knowledge is a crucial part of acquiring L2 proficiency, because every language consists of a plethora of collocations and because collocations are necessary for appropriate, idiomatic and fluent language production (Nation, 2001).

It has been observed that developing L2 collocational competence is challenging (Boers et al., 2014; Nesselhauf, 2003). One of the explanations for the learning difficulty of collocations is that L2 learners might already be familiar with the words that make up a collocation (Boers, 2020). This may prevent them from noticing collocations when they encounter them, while noticing has been shown to be an important first step for retention (Schmidt, 1990). Another explanation lies in the influence of learners' L1 (Laufer & Waldman, 2011). L2 learners tend to rely on using literal translation equivalents, which often results in unnatural and even odd collocations. Congruency, defined as "the presence or absence of a literal L1 translation equivalent" (Peters, 2016, p. 114) has indeed proved to be an influencing factor when it comes to the acquisition, processing or

use of collocations (Boone et al., 2023; Ding & Reynolds, 2019; Vu & Peters, 2022; Wolter & Gyllstad, 2013). A further factor is the lack of exposure to the target language (Durrant & Schmitt, 2010), and it has been demonstrated that numerous encounters are needed before a collocation is learned (Vilkaitė, 2017). Some learners, however, seem to deal with these difficulties better than others, since large individual variation in collocation knowledge has been observed (Boone et al., 2023; González Fernández & Schmitt, 2015; Li & Schmitt, 2010). This variation might partially be the result of individual differences that are assumed to influence L2 learning at various levels (Dörnyei, 2005).

2.2. Individual differences in L2 collocation development

Despite a substantial body of work in SLA on IDs, there is still a need for studies looking at IDs enhancing the acquisition of formulaic language (Erman et al., 2018). In what follows, four categories of IDs which might influence students' phrasal development will be defined and relevant research results will be presented.

2.2.1. L2 motivation

L2 motivation has shown to be a crucial factor influencing SLA (Dörnyei, 2005, 2019). In the past few decades, L2 motivation research has drawn on different theoretical frameworks such as Gardner's socio-educational model (1985), Dörnyei's L2 motivational self system (2005), and self-determination theory (SDT) (Ryan & Deci, 2000a). This study is guided by the SDT approach, because SDT looks at the inherent human tendency towards growth, in this case, developing L2 collocation knowledge. SDT is built on the core assumption that competence, autonomy, and relatedness are key factors to achieve motivation. A second assumption is that intrinsic motivation (doing something for its inherent satisfaction) should be differentiated from extrinsic motivation (doing something in order to attain some separable outcome) (Ryan & Deci, 2000b). When it comes to language learning, intrinsic motivation is said to be crucial (Noels et al., 2001).

Until recently, much L2 motivation research has adopted a fairly broad perspective on L2 learning, meaning that "research has had relatively little to say about how motivation interacts with the acquisition of particular features of the target language" (Ushioda, 2016, p. 574). Indeed, when it comes to the learning of FS, there are only a few studies exploring the influence of L2 motivation. In a larger project on IDs in the acquisition of FS, the qualitative findings reported by Dörnyei et al. (2004) described the extraordinary motivation of the

successful learners. The authors conclude that three main factors are involved in successfully acquiring FS: language aptitude, motivation, and sociocultural adaptation. More recently, Arvidsson (2021) investigated qualitatively which factors promote the learning of L2 French multiword expressions in a study abroad (SA) context. She found that learning seemed to be facilitated by frequent contact with the L2 together with the learners' attentional and behavioral orientation to the L2, motivation, self-efficacy, and self-regulation. Although motivation has been shown to be a facilitating factor in acquiring FS in an SA context, it has not been investigated in relation to collocation learning in instructed settings.

2.2.2. L2 exposure and use

Usage-based theories of human language learning hold that L2 learning is experience-driven (Ellis & Ogden, 2017). Central in this experience is that vocabulary items occur in the linguistic input with different frequencies. The more often a learner encounters a word or word sequence in the input, the better the learner will remember it. Language knowledge, also collocation knowledge, is thus closely linked to language exposure and frequency of use (Durrant & Schmitt, 2010; Ellis, 2002). Language students, however, generally have much less exposure to the L2 compared to L1 speakers. Immersion in an L2 environment can lead to a higher amount of L2 exposure, and there is some evidence that L2 immersion might enhance learners' knowledge of FS. González Fernández and Schmitt (2015) investigated the productive collocation knowledge of 108 Spanish learners of English and found that L2 learners' collocation knowledge correlated with corpus frequency (.45) and with learners' informal language usage (.56). A higher correlation (.64), however, was found between learners' collocation knowledge and L2 immersion.

In SA contexts, results seem to be less clear cut. In Li & Schmitt's (2010) study, an immersion experience of one year in England seemed to be insufficient for four advanced Chinese L2 learners to improve the number of collocations produced in their academic writing. This finding, however, was based on the group's results, and large inter-learner variation in collocation development was detected. Arvidsson (2019) found that the quantity of out-of-class L2 contact during SA did not predict learners' phrasal development. As also suggested by González Fernández and Schmitt (2015), acquiring FS thus "relies on more than just frequency of exposure" (p. 112). Active participation in meaningful interaction with L1 speakers of the L2, for example, may help orient the L2 user's attention towards the language form (Ellis, 2015). Social networking with the members of the target speech community has indeed been suggested to promote students'

formulaic development (Boone, 2021; Dörnyei et al., 2004). Also in a migratory context, language use and social networks were detected as factors that distinguished high-performing from low-performing L1 Swedish L2 French users in terms of collocation knowledge and nativelikeness (Forsberg Lundell & Arvidsson, 2021).

Although these studies undoubtedly have provided interesting insights, little is known about how L2 exposure and use influence collocation learning in contexts in which a foreign language is learned both in and outside the classroom.

2.2.3. L2 learning experience

Within the L2 motivational self system proposed by Dörnyei (2005), the L2 learning experience is the third dimension of this dynamic and complex, multi-dimensional construct, next to the ideal L2 self and the ought-to L2 self. It “may be defined as the perceived quality of the learners’ engagement with various aspects of the language learning process” (Dörnyei, 2019, p. 25). In some studies, L2 learning experience is conceptualized in a much broader sense, for example, referring to prior language learning experience and a learner’s subjective experience (Forsberg Lundell & Arvidsson, 2021). In the present study, L2 learning experience will be defined following the conceptualization of Csizér and Kálmán (2019, p. 227): “On the one hand, it is a concurrent perception of cognitive and emotional processes, as well as external stimuli and circumstances that the learner experiences during the course of learning a foreign language in and outside the classroom. On the other hand, it can also be viewed as a synthesis of retrospective contemplation that may continuously evolve after the actual language learning has taken place.”

L2 learning experience was found to be a distinguishing factor between the high-performing and low-performing participants in the study of Forsberg Lundell and Arvidsson (2021). Especially the self-reported language aptitude, language interest and enjoyment of learning characterized the high-performers. However, much is still to be learned about students’ L2 learning experience in relation to collocation development.

2.2.4. L2 learning strategies

The concept of language learning strategies (LLS) has become fundamental in SLA, because LLS often affect individual success or failure in L2 learning (Pavičić Takač, 2008). Several studies have dealt with defining and categorizing LLS, which resulted in a vast number of definitions and taxonomies (O’Malley & Chamot, 1990, Oxford, 1990). Pavičić Takač (2008) summarizes the concept of LLS as “specific

actions, behaviors, steps or techniques that learners use (often deliberately) to improve their progress in development of their competence in the target language" (p. 52). This definition will be used in this study.

Regarding the categorization of LLS, the classification of O'Malley and Chamot (1990) into cognitive (indicating manipulation or transformation), metacognitive (used to control the learning process), and social/affective strategies (involving interaction with others or taking control of one's own feelings) seems to be widely accepted. These major types of strategies are also represented in other classifications, for example, in Oxford's (1990) classification of vocabulary learning strategies (VLS), which also includes memory strategies (involving relating the new word with some previously learned knowledge). In Schmitt's taxonomy of VLS (1997), a new category was introduced, namely determination strategies, used for the discovery of a new word's meaning. Examples of determination strategies are analyzing parts of speech, analyzing affixes and roots, and guessing from textual context. Cognitive strategies include verbal or written repetition, using word lists or flash cards, taking notes in class, or keeping a vocabulary notebook. Memory strategies contain, for example, using new words in sentences, saying words aloud when studying, using cognates or learning the words of an idiom together. Metacognitive strategies are, for example, using target language media, testing oneself with word tests, using spaced word practice, and continuing to study the word over time. Social strategies include asking the teacher or classmates, discovering, studying or practicing new words through group work activity, or interacting with L1 speakers (Schmitt, 1997). It should be remarked that this taxonomy is based on the author's subjective estimation and that some strategies can be classified into more than one group.

Regarding the relationship between LLS and L2 learners' vocabulary knowledge, Gu and Johnson (1996) detected a positive relationship between several types of VLS (e.g., contextual guessing, dictionary use, paying attention to word formation) and vocabulary knowledge. It can be assumed that the findings regarding VLS may apply for L2 collocations too (Nation, 2001), although to the best of our knowledge, no study has explored which strategies are used by effective and less effective collocation learners.

3. Method

3.1. Participants

The five focal participants in this study were selected from a larger pool of 50 Belgian undergraduate language students (L1 Dutch), majoring in German and an additional foreign language, who participated in a mixed-methods 3-year longitudinal

project on L2 phrasal development (Boone, 2022). From this pool, 19 learners took part in all tests of the project, including three end-of-year collocation tests, which measured learners' form recall knowledge of 35 target collocations – scored dichotomously – by means of a gap-fill translation test (see Appendix A). Although all learners can be considered successful language learners, large individual variation was observed in students' collocation test scores over the years. This variation led us to investigate which factors are associated with more effective or less effective collocation learning. Five clearly contrasting cases of collocation learners (three males, two females) were selected using an extreme sampling strategy, following the approach of other qualitative studies on FS (Arvidsson, 2021; Dörnyei et al., 2004). Participants were ranked according to their performance on the year-3 collocation test, because this score reflects students' productive collocation knowledge after having studied German for three years. The three students with the highest scores and the two students with the lowest score were selected (see Table 1).

During their 3-year bachelor's program, the students had received the same amount of formal instruction in German, and participated in a compulsory 5-month SA program in a country in which one of their languages of study is spoken. They continued to study German at their respective host universities. At the time of the interview, they had obtained their bachelor's degree and were pursuing a master's degree in Translation, Interpreting or Multilingual Communication. They were 21-22 years old. Their level of proficiency in German at that time was C1/C2 (advanced) according to the Common European Framework of Reference (Council of Europe, 2001).

Table 1 displays the participants' background information (names are pseudonyms). Learners' collocation test scores are also presented, together with the group results.

Table 1 Participants and test scores

	Major languages	SA country	Coll. test score T1	Coll. test score T2	Coll. test score T3
<i>Effective collocation learners</i>					
Kai	German, Spanish	Spain	42.86	68.57	82.86
Emma	German, French	Austria	51.43	71.43	80.00
Bryan	German, French	Germany	40.00	60.00	74.29
<i>Less effective collocation learners</i>					
James	German, Turkish	Turkey	28.57	45.71	42.86
Layla	German, Spanish	Germany	31.43	31.43	40.00
<i>Group (N = 19)</i>					
Mean			34.89	53.08	58.65
SD			9.01	10.58	12.65

Note. The maximum score was 100

3.2. Procedure

A semi-structured, one-on-one interview was conducted when participants started their master's program. An interview guide (see Appendix B) was developed to make the interview data comparable across participants. Example questions are: "How do you look back on your learning trajectory?," "Which were the key factors influencing your collocation development?," "Have you used any specific strategies to learn collocations?." The interview was conducted in participants' L1 to ensure they could fully express their thoughts. It was carried out by the first author of this paper in November 2020. The interviews lasted between 30 and 36 minutes, and were conducted and recorded through Microsoft Teams. The recordings were transcribed verbatim and the transcripts were double-checked by the first author, who also contacted the participants by email for member checking (Creswell & Miller, 2000). Participants were invited to adjust or change responses to ensure the accuracy and completeness of their transcript. Once the checked transcripts were received, they were imported into NVivo 12 (Jackson & Bazeley, 2019) for coding and analysis.

The participants also wrote additional reflections on five specific target collocations (see Table 2) appearing as target items in the three collocation tests. These collocations were chosen because of their contrasting mean scores in the year-3 test. The two highest scoring collocations and the three lowest scoring collocations (max = 1) were selected. Learners' written reflections about these specific collocations were guided by open-ended questions (e.g., on learners' experienced difficulty with the item, frequency of encounters, learning strategies).

Table 2 Collocations selected for the written reflections

Coll. ID	German collocation	Dutch collocation	English translation	Coll. type	L1-L2 congr.	Mean score T3
5	weiches Herz	gevoelig hart	soft heart	adj-noun	no	0.18
13	richtiger Weg	juiste weg	right track	adj-noun	yes	0.88
20	Stellung nehmen	standpunt innemen	take position	noun-verb	no	0.04
22	Ziel erreichen	doel bereiken	achieve a goal	noun-verb	yes	0.95
29	im Gedächtnis behalten	in gedachten houden	bear in mind	prep-noun-verb	no	0.02

Note. Coll. = collocation; congr. = congruency

3.3. Data analysis

The data were analyzed in NVivo 12 using a deductive, theoretically driven thematic analysis, which means that we looked for themes in the data that were directly related to the four predefined categories. The steps presented by Braun and Clarke (2006, p. 87) were followed. Step one and two included familiarization

with the data and generating initial codes. To this end, data excerpts related to each predefined category were extracted. Then, codes were collated into potential themes and themes were reviewed to check if they matched with the coded parts. To count as a theme, the meaning content had to occur at least in two of the five interviews or written reflections (e.g., Forsberg Lundell & Arvidsson, 2021). For example, a theme in the category “L2 exposure and use” is “out-of-class activities.” After the first round of analysis made by the first author, the second round was conducted. When this round was finalized, the authors got together to discuss the identified themes, which were then confirmed or adjusted. The last steps involved defining and naming themes that answered the research question. The identified themes are presented below, using illustrative quotes that were translated from Dutch into English.

4. Findings

4.1. L2 motivation

The five learners can be considered as motivated, since they all chose to major in German, successfully obtained their bachelor’s degree and were pursuing a master’s degree. Nevertheless, some motivational differences were observed between the effective and less effective collocation learners (summed up in Table 3).

All learners mentioned their passion for the language and the importance of German in Europe and the professional world they aspire to become part of as the most important reasons for studying German. However, the motivation of the effective collocation learners appeared to be higher in their pre-university years. Emma, for example, reported that she had spent more time studying German than is usually expected of someone in high school. On top of that, she went to Germany for one month between high school and university to study German, because she liked the language so much. Layla and James, the less effective collocation learners, chose to major in German (and not in French) because their grades for German were better.

When starting university, the effective collocation learners had very clear goals in mind (e.g., writing and speaking fluently, using the language in daily life, sounding like an L1 speaker). During their studies, they were committed, enthusiastic, and persistent to achieve their goals. For them, collocations seemed a way to reach these goals, which is illustrated by this quote by Bryan:

If you know those word combinations, it's easier to write and speak, so I started to focus on them.

Emma reported:

For me, it was motivating that I noticed that my speaking improved [because of the collocations].

The less effective collocation learners, on the contrary, reported that they had not set specific goals for themselves. They also relied heavily on the study program to develop their German skills, whereas the effective collocation learners appeared to be more autonomous learners, who engaged with learning collocations outside the classroom.

Participants' learning experience (see 4.3.) seemed to have influenced their L2 motivation to continue with German in future life. The effective collocation learners appeared to have a sustained motivation to use German and to expand their knowledge further after graduating. This theme is exemplified by Emma's comment:

I'm going to do everything I can to make sure German still plays a role.

This was different for the less effective learners. James said:

I don't think I'll be looking specifically for something with German after graduating, but I wouldn't mind if I find something with German of course.

Table 3 Identified themes regarding L2 motivation

L2 motivation	
Effective collocation learners' themes	Less effective collocation learners' themes
Intrinsic motivation: interest, passion, fascinated by grammar	Intrinsic motivation: interest, passion
Extrinsic motivation: importance of German in Europe, job opportunities	Extrinsic motivation: importance of German in Europe, good grades in high school
Language goals: writing and speaking fluently, using the language in daily life, sounding like a L1 speaker	No specific language goals
Sustained motivation to use German in future life (professionally and personally)	No clear intentions to use German professionally in future life
Motivation as a key factor in learning	

4.2. L2 exposure and use

All learners had had the same amount of formal instruction in German in high school and at university. However, the effective collocation learners reported regular exposure to German outside the classroom through activities such as

watching subtitled movies or series, listening to music, reading, and traveling. Especially for learning collocations, the engagement with this out-of-class exposure seemed to play a role. Emma, for example, explained that she tried to pick up words or idiomatic expressions by watching movies. Kai reported:

I have seen some German series and I listen to some German music too . . . That can always help, especially those series I think.

The amount of informal L2 exposure seemed to be lower in the less effective collocation learners (the differences between the two groups are summarized in Table 4). Layla mentioned sending voice messages to a German friend, James did not mention any out-of-class activities in order to learn collocations.

All participants saw their 5-month SA experience as a key factor in their language development, although clear differences were found between the learners. Two of the effective collocation learners (Bryan and Emma) spent a semester in a German-speaking country. Bryan said that he had interacted mostly with co-national students, although he explained that both his German classes and his stay in the German-speaking environment helped him develop his collocation knowledge. Emma, who was in Austria, spoke a lot of German, and had a German-speaking roommate with whom she spent a lot of time. According to Emma, using the L2 extensively must have contributed to the development of her collocation knowledge. When she was in Austria, she also started to make collocation lists in her mobile phone:

Every time when I heard something that sounded nice together, I saved it in my phone.

Kai, the other effective collocation learner, went to Spain. Surprisingly, he testified to speaking a lot of German there. He reported that the frequent conversations with a very good German friend there might have helped him in developing his collocation knowledge. Additionally, his German classes in Spain were very interactive, and Kai liked to use collocations in his texts during writing class, because:

I wanted to be able to do a little better than what was expected.

Whereas the effective collocation learners seemed to have benefitted from SA more in terms of collocation development, the less collocation effective learners gained self-confidence during SA. James, who went to Turkey, declared that he had joined a German group of friends there, and that his fear of speaking had disappeared as a result of it. However, his German language skills – including collocation knowledge – did not improve because he only attended two German courses and he did not feel that he had learned a lot there. Layla spent the semester in Germany. She reported

that she had taken a list with collocations with her to learn these, and noticed that she could use them in conversations. The positive feedback she got from her German interlocutors was a good experience, boosting her self-confidence:

Well, I really went for it, and when it was wrong, then it was wrong, but I did have a lot of self-confidence then.

All effective collocation learners seemed to agree that frequent encounters with collocations are important for long-term retention, and that items consisting of frequent single words are easy to remember. This is illustrated by the following quote of Kai about the collocation 'Ziel erreichen':

I did not find this collocation difficult because the words are often used in everyday language. 'Ziel' and 'erreichen' are simple words that we already learned at an early stage of learning German. The collocation also occurs frequently.

For incongruent collocations, the effective collocation learners seemed to be convinced that multiple encounters are helpful and even necessary for acquisition. Bryan, for example, wrote about the incongruent collocation 'Stellung nehmen':

I think I might have encountered the collocation already, but it has been too long since I have encountered it or repeated it that I have forgotten it. It would be helpful to encounter this collocation more often.

Layla, a less effective learner, had a different opinion:

I think that more encounters wouldn't help me in acquiring this collocation ['im Gedächtnis behalten']. I think I will always be a little confused and never be sure.

Table 4 Identified themes regarding L2 exposure and use

L2 exposure and use	
Effective collocation learners' themes	Less effective collocation learners' themes
Out-of-class activities: watching subtitled movies or series, listening to music, reading, traveling	Out-of-class activities: sending voice messages
SA: speaking in German, exposure through environment, having a good German-speaking friend/room-mate, classes	SA: gain of self-confidence when speaking in German, exposure through environment (Layla)
Frequency of encounters: helpful in the acquisition of both congruent and incongruent collocations	Frequency of encounters: not necessarily helpful

4.3. L2 learning experience

All learners had enjoyed learning German in high school and had had inspiring teachers. This positive experience led them to major in German. Regarding students' learning trajectory at university, it was found that all effective collocation learners had had a smooth trajectory, although they had not found it easy to perfect their German. Emma and Bryan, for example, reported that especially collocations remain difficult. The less effective collocation learners showed a more arduous learning curve. James and Layla failed several German exams in the first two years. They managed to obtain their degree, although Layla expressed some regret about how it went:

I regret that I did not study more back then and I think that my vocabulary knowledge would be larger today if I had.

The data showed a growing collocation awareness over time in all learners, except in the case of James:

For me, collocations are something from class, but I don't actually pay attention to them, or to whether I use them or not.

The others reported that they became more aware of the importance of collocations over time because lecturers focused on them, or because of their own experience. Emma, for example, explained that she had not paid attention to collocations in the beginning. Later, however, she noticed that collocations were useful:

They give you the feeling that you don't really have to think anymore and that you have much more time to think about what you are going to say next.

Bryan considered collocations to be very important because of fluency in writing and speaking and because of idiomaticity. For Kai, collocations represented a higher level of language knowledge, and gave him a feeling of satisfaction when using them correctly, for example, in writing. Thus, the effective collocation learners noticed that collocations could help them in reaching the language goals they had set for themselves in the beginning. Layla had a positive experience during SA when she noticed that she could use some collocations in conversations.

An experience shared by all learners was that they considered the two collocations with the highest score ('Ziel erreichen' and 'richtiger Weg') easy to learn because they can be translated literally from the L1. However, students also shared the opinion that L1 influence can be both advantageous and disadvantageous when learning collocations. If a L2 collocation is not known, L1 congruence can be helpful. The effective collocation learners seemed to be well aware of

the risk of L1 transfer, and admitted to pay more attention when collocations are not the same as in Dutch. Bryan reported:

I always mark the incongruent collocations in order to pay attention to them.

The less effective collocation learners seemed more confused about the correct form of congruent collocations, as illustrated by this quote by Layla:

I always think: that can't be right, because it's exactly the same.

The themes are presented in Table 5.

Table 5 Identified themes regarding L2 learning experience

L2 learning experience	
Effective collocation learners' themes	Less effective collocation learners' themes
Pre-university: positive experience, inspiring teachers	Pre-university: positive experience, inspiring teachers
Learning trajectory at university: smooth, awareness of difficulties	Learning trajectory at university: arduous in the first years
Experience with collocations: Growing awareness of (the importance) of collocations, positive experience/enjoyment when using them	Experience with collocations: Awareness and positive experience during SA (Layla) No specific attention to collocations (James)
L1 influence: Awareness of the risks leads to the use of specific strategies	L1 influence: Leads to confusion

4.4. L2 learning strategies

The mechanical rote learning of lists of L2 words or collocations and their L1 translations, especially in the first two years, was found to be the most prominent cognitive strategy used by all learners. Another strategy which is listed as cognitive in Schmitt's (1997) taxonomy of VLS was keeping a vocabulary notebook. Both Emma and Layla started doing this during SA. Emma said that putting words in a context sentence was crucial for her for memorizing vocabulary.

Although the learners thus seemed to use the same cognitive strategies, the difference is clearer when focusing on the metacognitive strategies (see Table 6). For example, we found that the effective collocation learners studied word lists repeatedly over time. Bryan, when talking about German vocabulary class during the first year of study, said:

I studied the vocabulary at the beginning of the week, and then I made sure that I repeated it a second and ideally a third time before class.

Table 6 Identified themes regarding L2 learning strategies

L2 learning strategies	
Effective collocation learners' themes	Less effective collocation learners' themes
Cognitive strategies: rote learning of lists with L1 equivalents, notebook, putting words in context, dictionary use	Cognitive strategies: rote learning of lists with L1 equivalents, notebook
Metacognitive strategies: awareness of own learning process and expanding rehearsal (from the beginning), media use	Metacognitive strategies: awareness of own learning process and expanding rehearsal (later in the trajectory)
Social/affective strategies: (extensive) interaction with L1 speakers, peers and teachers, self-encouragement	Social/affective strategies: interaction with L1 speakers, peers and teachers, self-encouragement

The effective collocation learners all reported that, at the time of the interview, they still remembered the words and expressions learned back then. Layla, on the other hand, reported that she only studied the vocabulary for the exam and quickly forgot it afterwards. James did not study much and said that he had been a bit lazy in the first year. In addition, the effective collocation learners mentioned German-language media use in contrast to the less effective collocation learners, which is also a metacognitive strategy according to Schmitt's VLS (1997). Another strategy that appeared to be more present in the effective collocation learners was the practice of expanding rehearsal and awareness of its importance to learn words/collocations. They also seemed to be aware that collocations are fundamental for vocabulary development, and therefore paid more attention to them. For James, this was not the case. Layla became more aware of her learning process over time and said:

I think that in the end I have mastered a better study method, by doing and repeating the exercises.

As for social/affective strategies, no clear differences were found between the learners. They all engaged in interaction with L1 speakers – with two effective collocation learners having a very good German-speaking friend – and also interacted with teachers and peer students. The SA experience lowered the anxiety in all learners and self-encouragement was manifested by most learners. The following quote by Emma shows that collocation learning can be a frustrating and difficult process, in which self-encouragement as a strategy is necessary:

I often hit my limits and then I think how much work is still needed. That motivates me in a way. It also demotivates me sometimes, but it encourages me to work hard.

In their reflections, students wrote which strategies they used to remember the specific collocations. Contrastive analysis between L1 and L2 was mentioned as an effective strategy by all learners. For the most difficult, incongruent collocations, the effective collocation learners mentioned some other strategies:

The best thing is to repeat and memorize and not to compare the collocation with the Dutch equivalent. (Kai, about weiches Herz)

To remember this one, I use a mental picture. As if there would be a little man in my head who stands by his opinion and says "I'll take this one." (Emma, about Stellung nehmen)

5. Discussion

The aim of this study was to explore the role of L2 motivation, exposure and use, learning experience and learning strategies in the learning of L2 German collocations from students' perspective. These qualitative data may add to the body of research on factors influencing L2 learners' collocation development.

First, while all learners were motivated to major in German and can be seen as good language learners who successfully obtained a language degree, our data revealed that the key factors leading to motivation according to SDT (i.e., competence, autonomy, and relatedness) (Ryan & Deci, 2000a) seemed to be more present in the effective collocation learners. This might have led to a higher and sustained motivation to deal successfully with learning L2 collocations. Also, these students' motivation increased when they noticed that collocations helped them in achieving the goals they had set for themselves when starting university. Additionally, the effective collocation learners, who showed a high engagement with German before and during university, seemed more intrinsically motivated compared to the less effective collocation learners. Studies have shown that intrinsically motivated learners gain more enjoyment from learning, are more willing to learn and work harder compared to their extrinsically motivated peers, which results in greater learning achievements (Noels et al., 2001). Dörnyei et al. (2004) found that the unsuccessful formulaic language learners were not bad or unmotivated learners either, but "they did not 'run the extra mile' necessary for success" (p. 105). Our findings seem to confirm that this 'extra mile' is necessary due to the challenging nature of L2 collocations, and that a high (intrinsic) motivation is called for.

Regarding L2 exposure and use, we observed that although all participants had received the same degree of formal instruction in German, the effective collocation learners received more informal, out-of-school L2 exposure than the less effective collocation learners. This finding is in line with several studies on the incidental learning of collocations, which demonstrated that L2 collocations can be acquired through reading or viewing television (Pellicer-Sánchez, 2017; Webb et al., 2013). In our study, exposure to authentic input was found to be an enhancing factor in developing collocation knowledge for learners who had already received a substantial amount of formal instruction. Additionally, the effective collocation

learners seemed to have a high level of engagement with the L2 input, which is argued to be crucial for collocation development (Barfield, 2009; González Fernández & Schmitt, 2015).

A key factor mentioned by all students in their vocabulary/collocation development was the SA experience. For the effective collocation learners, the SA experience was found to be important for collocation development, whereas for the less effective collocation learners, the SA experience was useful to boost their self-confidence. Studying abroad – both in and outside the L2 country – offered all students opportunities to practice German in social interaction, which has been found to be beneficial for learners' formulaic development (Boone, 2021; Dörnyei et al., 2004). However, students' collocation development appeared to depend strongly on the quantity and quality of input, output, and interaction abroad. The effective collocation learners seemed to have had a higher degree of L2 quantity and quality of input, output, and interaction, which was independent of their SA destination country (e.g., Kai engaging actively with the German language in Spain, both in his classes and with German friends). This might also explain why L2 immersion in a German-speaking country did not show to be a significant predictor of students' collocation development in the quantitative part of the project, in which L2 immersion in the target language country was entered as a binary variable in the regression model (Boone et al., 2023). From usage-based models of language acquisition we know that extensive exposure is needed for language learning in general and for collocation learning in particular (Ellis, 2002). This was confirmed by the view of the effective collocation learners, who were convinced that multiple encounters with a collocation are necessary for learning.

A factor that clearly separates the effective from the less effective collocation learners is that of the L2 learning experience. Although all learners mentioned positive experiences with German in high school, the less effective collocation learners experienced more difficulties learning German at university, which they attributed to an inefficient study method, reliance on prior knowledge or laziness.

In our study, one less effective collocation learner said that he did not pay special attention to collocations. Lack of attention to FS is one of the explanations for their relatively slow acquisition (Boers, 2020), and might thus be one of the factors that influenced James' collocation development. In contrast, the other learners seemed to have developed the awareness to notice how L2 collocations are expressed. Noticing is said to be crucial for L2 learning (Schmidt, 1990) and was also found to be a characteristic of the more successful multiword gainers in the study by Arvidsson (2021). Furthermore, the effective collocation learners reported a growing collocation awareness over time, and were increasingly aware of the advantages of using collocations, which helped them in achieving the goals they had set for themselves. Despite the difficulties experienced when learning

collocations, students generally had positive experiences when using them. For Layla, however, both the noticing and the positive experiences came relatively late in the trajectory, which might have been too late to enable her to catch up.

A last difference found regarding L2 learning experience were students' feelings towards L1 influence. First, congruent collocations were considered easy by the learners. This confirms the findings of several quantitative studies, in which it was shown that congruent collocations are recalled better or processed more quickly by L2 learners (Ding & Reynolds, 2019; Vu & Peters, 2022). Second, all learners seemed aware of the risks of translating collocations literally, although only the effective collocation learners found clear ways to deal with this. The effective collocation learners thus seemed to be self-regulated learners, since they clearly showed a capacity to control their behavior to improve learning (Dörnyei, 2005).

In the category of LLS, it was found that the effective collocation learners used more metacognitive strategies, as mentioned in Schmitt's VLS taxonomy (1997), such as using target language media and repeating word study over time. For the effective collocation learners, spaced repetition was said to be key in their collocation development. They thus created for themselves the encounters they needed to learn a specific collocation. Additionally, they were aware of the importance of collocations for general L2 development, and adapted their learning accordingly. For example, they seemed to notice when contrastive analysis was appropriate as a strategy, and when to use other strategies. Since metacognitive strategies are closely linked to the concept of self-regulation (Dörnyei, 2005), this finding also indicates that the effective collocation learners seemed to have a higher degree of self-regulation compared to the less effective collocation learners, which was also found by Arvidsson (2021).

6. Conclusion

Our research question concerning the differences between effective and less effective collocation learners can be answered by stating that the effective collocation learners were characterized by a combination of the following IDs: a high intrinsic motivation, a high engagement in both formal and informal learning activities, extensive social interaction with L1 users, awareness towards collocations, and a high degree of self-regulation.

The findings of the present study give rise to some pedagogical implications. First, because even the effective collocation learners, who were trained to be language specialists, perceived the developing of collocation knowledge as difficult, it is clear that teachers need to guide their students in this process. Teachers could start with emphasizing the importance of collocations, and

should encourage learners to focus on word combinations both in and outside the classroom. Creating collocation awareness, especially at the beginning of students' learning trajectory, seems a crucial pedagogical task. Teachers should also encourage their learners to engage in informal learning activities, such as reading, watching television, and using the L2 in social interaction. Such activities are known to be beneficial for language learning in general, but in the present study, the effective collocation learners mentioned them as useful for their collocation development. Finally, when it comes to LLS, teachers should help students develop a broader range of strategies for learning collocations.

The findings of this study have to be interpreted in light of some limitations. For one, a case study of five students does not warrant generalizable claims. On the other hand, as argued by Kinginger (2008, p. 113): "For what they lack in generalizability, case studies compensate in depth and detail of portrayal, offering an opportunity to appreciate the unique complexity of particular contexts." Second, although some distinguishing factors between effective and less effective collocation learners were found, the analysis was based on one retrospective interview per participant and written reflections about five specific collocations. Repeated interviews and investigations about a larger set of collocations could prove useful when investigating collocation development. Finally, this study focused on four broad categories of IDs, in which some overlap is inevitable. Investigating other IDs such as personality or attitude could enable us to understand what other factors are involved in the complex process of L2 collocation development.

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APPENDIX A

The gap-fill translation test used in the study

List of the 35 German target collocations with their English translation

	German collocation	Dutch collocation	English translation
1	werdende Mutter	toekomstige moeder	expectant mother
2	helles Bier	blond bier	blonde beer
3	fließendes Wasser	stromend water	running water
4	tiefe Stimme	lage stem	deep voice
5	weiches Herz	gevoelig hart	soft heart
6	reine Wolle	zuivere wol	pure wool
7	enger Zusammenhang	nauw verband	strong link
8	blauer Himmel	blauwe hemel	blue sky
9	Erste Hilfe	eerste hulp	first aid
10	enge Zusammenarbeit	nauwe samenwerking	close cooperation
11	fremde Länder	vreemde landen	foreign countries
12	gesetzlicher Feiertag	wettelijke feestdag	bank holiday
13	(auf dem) richtigen Weg (sein)	(op de) juiste weg zijn	(be on the) right track
14	Gepäck aufgeben	bagage inchecken	check in luggage
15	Radio hören	naar de radio luisteren	listen to the radio
16	Schlagzeilen machen	de krantenkoppen halen	make headlines
17	eine Zigarette anzünden	een sigaret opsteken	light a cigarette
18	Wert legen (auf)	belang hechten	put emphasis (on)
19	Sorgen machen	zorgen baren	have worries
20	Stellung nehmen	hun standpunt kenbaar maken	take position
21	eine Rolle spielen	een rol spelen	play a role
22	Ziel erreichen	doel bereiken	achieve a goal
23	Gespräche führen	gesprekken voeren	hold talks
24	Gas geben	gas geven	step on the gas
25	Vortrag halten	lezing houden	give a lecture
26	Koffer packen	koffers pakken	pack one's bags
27	Haare schneiden	haar knippen	have a haircut
28	Eindruck machen	indruk maken	make an impression
29	im Gedächtnis behalten	in gedachten houden	bear in mind
30	in Ruhe lassen	met rust laten	leave alone
31	in Kraft treten	in werking treden	come into force
32	zu Ende gehen	ten einde lopen	come to an end
33	zur Sache kommen	ter zake komen	come to the point
34	in Sicherheit bringen	in veiligheid brengen	bring to safety
35	an die Reihe kommen	aan de beurt komen	to be next in line

Gap-fill translation task with the 35 target items in Dutch between brackets.

- Wir haben eine Safari gemacht und hatten da kein (stromend water) _____.
Wir konnten sogar kein (naar de radio luisteren) _____, aber wir konnten interessante (gesprekken voeren) _____.

2. Sie müssen (in gedachten houden) _____, dass Sie im Notfall andere und sich selbst zuerst (in veiligheid brengen) _____ sollten oder den Notarzt rufen sollten, bevor Sie (eerste hulp) _____ leisten.
3. Eine (nauwe samenwerking) _____ zwischen den Abteilungen ist etwas, worauf wir großen (belang hechten) _____. Wir sind aber auf dem (juiste weg) _____.
4. Es ist wichtig, dass Sie, als (toekomstige moeder) _____ nicht ständig (een sigaret opsteken) _____ oder (blond bier) _____ trinken.
5. Die Wettervorhersage für heute: leider kein (blauwe hemel) _____.
6. Zwischen Gesundheit und Armut besteht ein (nauw verband) _____. Auch andere Faktoren können (een rol spelen) _____.
7. Ich möchte später (vreemde landen) _____ kennen lernen. Dann muss man natürlich regelmäßig seine (koffers pakken) _____.
8. Unser Babysitter ist sehr nett und hat ein (gevoelig hart) _____.
9. Wenn das Gesetz (in werking treden) _____ wird, wird diese Nachricht überall (de krantenkoppen halen) _____.
10. Sie werden gleich (aan de beurt komen) _____. Mein Kollege wird Ihnen die (haar knippen) _____.
11. Er hat uns in eine schwierige Lage gebracht, aber wir können trotzdem versuchen, das (doel bereiken) _____ zu _____.
12. Bevor die Sommerferien (ten einde lopen) _____, möchte ich gleich im Duty-free-Shop noch (zuivere wol) _____ kaufen. Jetzt aber müssen wir (gas geven) _____, denn wir müssen noch das (bagage inchecken) _____.
13. Wir müssen mit den Vermietern sprechen. Ich hoffe, dass sie bald (hun standpunt kenbaar maken) _____.
14. Der Wissenschaftler wird gleich einen (lezing houden) _____. Ich habe ihn schon sprechen hören: er hat eine (lage stem) _____ und ich vermute, dass er jetzt auch schnell (ter zake komen) _____ wird und (indruk maken) _____ wird.
15. Auch der 26. Dezember ist ein (wettelijke feestdag) _____.
16. Die aktuelle Entwicklung muss uns (zorgen baren) _____.
17. Können Sie uns jetzt bitte endlich (met rust laten) _____?

APPENDIX B

The interview guide

Original interview guide (in Dutch)	English translation
<p><i>Start van het leertraject</i></p> <ol style="list-style-type: none"> 1. Waarom heb je, toen je startte aan de universiteit, voor Duits gekozen? 2. Met welk doel/welke doelen ben je precies gestart (bv. vertaler of tolk worden, vlotte gesprekken kunnen voeren, een hoog niveau van de taal bereiken, ...)? 3. Toen je begon aan je studies hier, had je al voorkennis Duits? Indien ja: hoeveel uren Duits per week had je in je middelbare school? 4. Was die voorkennis een voor- of nadeel voor jou? 	<p><i>Start of the learning trajectory</i></p> <ol style="list-style-type: none"> 1. Why did you choose German as a major subject at university? 2. Which goal(s) did you have when starting university (e.g., becoming a translator or interpreter, being able to have smooth conversations, achieving a high level of proficiency in the language, ...)? 3. When you started your studies here, did you already have prior knowledge of German? If yes: how many hours of German per week did you have in secondary school? 4. Was that prior knowledge an advantage or disadvantage for you?
<p><i>Terugblik op het traject</i></p> <ol style="list-style-type: none"> 5. Hoe blik je terug op je leertraject Duits gedurende de jaren hier? M.a.w.: als je kijkt naar jezelf als eerstejaarsstudent en nu als masterstudent: hoe blik je terug op je eigen ontwikkeling (voor productieve woordenschat/voor receptieve woordenschat/voor collocaties)? 6. Bij het leren van Duitse woordenschat algemeen, en specifiek van collocaties: welke zaken hebben volgens jou invloed gehad gedurende het leerproces? M.a.w.: wat zijn volgens jouw sleutelfactoren in het leerproces geweest (bv. rol van docenten, klasinstructie, buitenlandsemester (+ vrienden daar), kennis over belang van collocaties, motivatie, ...)? 7. Hoe ervaarde je het leren van Duitse woorden/collocaties? Ging dat moeilijk/makkelijk? 8. Welke rol heeft het je moedertaal (het Nederlands) gespeeld bij het leren van Duitse woorden/collocaties? 9. Had je bepaalde strategieën om woorden/collocaties te leren en indien ja, welke strategieën had je precies? Wat werkte voor jou wel/niet? Is dit veranderd gedurende de jaren? 10. Heb je, naast de specifieke leertechnieken/strategieën, nog andere zaken gedaan om je woordenschatkennis/collocatiekennis Duits te verbeteren? 	<p><i>Looking back on the learning trajectory</i></p> <ol style="list-style-type: none"> 5. How do you look back on your learning trajectory for German during the years here? In other words, if you look at yourself as a freshman and now as a master's student: how do you see your own development (for productive vocabulary/for receptive vocabulary/for collocations)? 6. When learning German vocabulary generally, and specifically collocations: what things do you think have influenced your learning process? In other words, which were, in your opinion, key factors in the learning process (e.g., role of teachers, class instruction, study abroad (+ friends there), knowledge about the importance of collocations, motivation, ...)? 7. How did you experience the learning of German words/collocations? Was it difficult/easy for you? 8. Which role did your native language (Dutch) play when learning German words/collocations? 9. Did you have certain strategies to learn words/collocations and if so, which strategies did you have exactly? What worked/did not work for you? 10. Besides the specific learning techniques/strategies, did you do other things to improve your vocabulary knowledge/collocation knowledge?

<p>11.Hoe verklaar je je vooruitgang/achteruitgang in de woordenschattesten/in de collocatietesten? Wat denk je, heeft die score op dat moment het meest beïnvloed (bv. specifieke vakken die je toen kreeg, buitenlandsemaster, opzoeken van onbekende collocaties na de test, ...)?</p> <p>12.Welke rol hebben collocaties/meerwoordcombinaties voor jou gespeeld gedurende je traject hier? Is je houding t.o.v. collocaties in de loop van de jaren veranderd?</p>	<p>11.How do you explain your progress/learning loss in the vocabulary tests/in the collocation tests? In your opinion, which factors have influenced that score at that time most (e.g., specific courses you were taking at the time, study abroad, looking up unfamiliar collocations after the test, etc.)?</p> <p>12.What role have collocations/multi-word combinations played for you during your learning trajectory here? Did your attitude toward collocations change over the years?</p>
<p><i>Toekomst</i></p> <p>13.Hoe denk je dat je Duitse woordenschat- en collocatiekennis verder zal evolueren?</p> <p>14.Welke rol zou Duits voor jou in de toekomst kunnen spelen (bv. op professioneel/persoonlijk vlak)?</p>	<p><i>Future</i></p> <p>13.How do you think your German vocabulary and collocation knowledge will continue to evolve?</p> <p>14.What role might German play for you in the future (e.g., on a professional/personal level)?</p>